DRAFT

Prepared for

CP Development Company L.P.
One Sansome Street, Suite 3200
San Francisco, California 94104

RISK MANAGEMENT PLAN
HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

Prepared by

Geosyntec consultants
engineers | scientists | innovators

1111 Broadway, 6th Floor
Oakland, California 94607

Project Number: WR1247

DATE 2018
Revision 1

Risk Management Plan
Hunters Point Naval Shipyard
San Francisco, California

Prepared by

Geosyntec Consultants, Inc.
1111 Broadway, 6th Floor
Oakland, California 94607

Randolph C. Brandt, P.G.
Senior Principal

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LIST OF ACRONYMS AND ABBREVIATIONS

ADMP	Asbestos Dust Mitigation Plan
ARIC	Area Requiring Institutional Controls
ATCM	Airborne Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
BGMP	Basewide Groundwater Monitoring Program
Cal/OSHA	California Occupational Safety and Health
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986
CIH	Certified Industrial Hygienist
City	City and County of San Francisco
COC	chemical of concern
COPC	chemical of potential concern
CP DevCo	CP Development Co., LP
CRUP	Covenants to Restrict Use of Property
CWA	Clean Water Act
DCP	Dust Control Plan
DTSC	California Department of Toxic Substance Control
DWR	Department of Water Resources
EHSPs	Environmental Health and Safety Plans
ESLs	Environmental Screening Levels
FFA	Federal Facilities Agreement
FOST	Finding of Suitability to Transfer
GMP	Groundwater Management Plan
HPS	Hunters Point Shipyard or Hunters Point Naval Shipyard
IR	Installation Restoration

LUCRDs	Land Use Control Remedial Design documents
mg/kg	milligrams per kilogram
MPPEH	material potentially presenting an explosive hazard
Navy	United States Department of the Navy
NFA	No Further Action
NOA	naturally occurring asbestos
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
OCII	Office of Community Investment and Infrastructure as the Successor Agency to the San Francisco Redevelopment Agency
OSHA	Occupational Safety and Health Administration
OVM	organic vapor monitor
PID	photoionization detector
PPE	personal protective equipment
PSC	Petroleum Strategy Criteria
QSD	Qualified SWPPP Developer
RACR	Remedial Action Completion Report
RAWP	Remedial Action Work Plan
RD	Remedial Design
RG	Remediation Goals
RMP	Risk Management Plan
ROD	Record of Decision
RSL	Regional Screening Level
RWQCB	Regional Water Quality Control Board
SFDPH	San Francisco Department of Public Health
SFPUC	San Francisco Public Utilities Commission
SGAL	Soil Gas Action Level

Shaw	Shaw Environmental Inc.
SIP	Soil Import Plan
SSHO	Site Safety and Health Officer
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
TPH	Total Petroleum Hydrocarbons
UCRP	Unexpected Condition Response Plan
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
WDRs	Waste Discharge Requirements
XRF	X-ray fluorescence

1. INTRODUCTION

The United States Department of the Navy (Navy) has conducted environmental investigations, feasibility studies, removal actions, and remedial actions at the former Hunters Point Shipyard or Hunters Point Naval Shipyard (HPS or Site) in San Francisco, California. These activities have been conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986 (CERCLA), the Clean Water Act (CWA), and state-specific environmental programs in consultation with the United States Environmental Protection Agency (USEPA), California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB) as specified in a Federal Facilities Agreement (FFA) for HPS (Navy, 1992). These federal and state regulatory agencies, along with the Navy, are referred to as the FFA Signatories.

The land at HPS is divided into Parcels, as depicted in Figure 1-1. In accordance with the final Records of Decision (RODs) for each Parcel, the Navy is responsible for implementing environmental cleanup activities to provide for protection of human health and the environment. For implementation of environmental activities for each Parcel, the Navy has prepared Land Use Control Remedial Design documents (LUCRDs) and Operation and Maintenance (O&M) Plans, which specify requirements for all future landowners. For RODs that call for land use and activity restrictions, the LUCRDs provide that the Navy will enter into a Covenant to Restrict Use of Property (CRUP) with DTSC for that Parcel, which will specify Restrictions applicable to the Parcel. The Restrictions in a CRUP run with the land in perpetuity and are enforceable by DTSC against Owners of the Site. Generally, the Restrictions specify land uses and activities that are prohibited or are restricted except with the approval of an Activity-Specific Work Plan approved by the FFA Signatories.

The Risk Management Plan (RMP) is a document called for by the LUCRDs, which provide that, "An RMP will set forth certain requirements or protocols that, if followed, will allow certain activities that are otherwise restricted to be performed without additional approval by FFA signatories". This RMP complies with this provision of the LUCRDs by specifying circumstances and conditions under which certain Restricted Activities may be performed without additional FFA Signatory approval, hereafter referred to as Restricted Activities Authorized with Conditions (see Section 2.1). For all other Restricted Activities, the Owner must prepare and submit a Restricted Activities

Work Plan for FFA Signatory approval prior to conducting the work (see Section 2.2.2). In addition to providing the manner in which Restricted Activities Authorized with Conditions must be performed, the environmental procedures and protocols set forth in this RMP are intended to provide a basis for the Owner to prepare site-specific work plans for FFA Signatory approval.

The Navy intends to transfer HPS property to the Office of Community Investment and Infrastructure (OCII), the Successor Agency to the San Francisco Redevelopment Agency. The transfer of property will occur after the Navy has prepared a Finding of Suitability to Transfer (FOST), and the FFA Signatories have concurred that the property is suitable for transfer for its intended future use.[1] The OCII, in conjunction with its developer, CP Development Company L.P. (CP DevCo), and in consultation with the FFA Signatories, has prepared this RMP. The FFA Signatories have approved the RMP. A definition of terms used in this RMP is included in Appendix A.

The RMP is organized as follows:

- **Section 1:** Introduction, including the RMP Scope and additional administrative document information.
- **Section 2:** Restricted Activities Authorized with Conditions and Reporting and Notification Protocols.
- **Section 3:** Risk Management Protocols Required for All Site Work: Presents risk management measures that must be implemented during Restricted Activities on the Site to ensure the integrity of the implemented remedies.
- **Section 4:** Risk Management Protocols for Work in Certain Areas with Known Environmental Conditions: Presents risk management measures that must be implemented during Restricted Activities, including special protocols, to ensure the integrity of the implemented remedies.
- **Section 5:** References: Lists referenced documents used in the preparation of this RMP.

[1] The reader may refer to the FOST documents for each respective Parcel which documents the FFA Signatory approval. FOST documents can be found in the document repositories (see Section 1.5).

1.1 RMP Scope

The Navy and OCII contemplate that land at the HPS will be transferred in discrete Parcels over time. The collective Parcels that have transferred and are subject to this RMP are herein referred to as the "Site". This RMP, Revision 1, applies specifically to the Parcels depicted in Figure 1-1. The RMP will be a living document and will be modified as each Parcel or Parcels of land are transferred from the Navy to OCII. As illustrated in Figure 1-1, the RMP applies to those Parcels where: a) a remedy is in place; b) the FFA Signatories have approved a Remedial Action Completion Report (RACR); c) the FFA Signatories have concurred on a FOST; d) ownership of the land has been transferred from the Navy to the OCII; and e) the Navy has entered into a CRUP with DTSC specifying Restrictions applicable to each Parcel. As the Navy transfers land Parcels to the OCII, subject to FFA Signatory approval, and those Parcels become subject to this RMP, the RMP and Figure 1-1 will be updated and, upon approval from the FFA Signatories, will be made available in the HPS information repositories (see Section 1.5) and on the San Francisco Department of Public Health (SFDPH) HPS Redevelopment website ([HYPERLINK "http://www.sfdph.org/dph/EH/HuntersPoint/default.asp"]). Figure 1-1 will be updated as Parcels transfer and will eventually include all Parcels depicted in Figure 1-2.

This RMP authorizes the Owner to perform certain Restricted Activities on the Site without further FFA Signatory approval, referred to as Restricted Activities Authorized with Conditions (see Section 2.1) provided that the Owner follows the environmental procedures and protocols set out in this RMP (see Sections 3 and 4). This RMP constitutes written approval from the FFA Signatories to perform Restricted Activities Authorized with Conditions for purposes of the CRUP and deed. To perform all other Restricted Activities, the Owner must obtain FFA Signatory approval through a Restricted Activities Work Plan or an Activity Specific Work Plan which may be based on this RMP and the procedures and protocols set forth herein. Owners are required to reimburse DTSC for its costs of oversight of Restricted Activities under Article III of the applicable CRUP as a cost associated with the administration of the CRUP.

In addition to this RMP, Owners of the Site must comply with all provisions of any CRUP applicable to the Parcel. The Site does not include, and this RMP is not required for, Parcel A or Parcel D-2 because those Parcels are not subject to land use or activity restrictions. In addition, the Site does not include, and this RMP is not applicable to, the areas subject to radiological restrictions, which are currently anticipated to be Lot 2 of

the Installation Restoration (IR) Site 7/18 on Parcel B, the shoreline area of Parcel E, and the majority of Parcel E-2 because a separate RMP or equivalent Restricted Activities Work Plan will be developed specifically for this type of land that has not received a radiological unrestricted release designation.

Although this RMP sets forth the requirements to appropriately manage the potential risks in soil and groundwater following remedy completion, the RMP is not intended to catalog all other legal requirements that may apply to the Site or to activities conducted under the RMP, including, but not limited to, worker health and safety as governed by the Occupational Safety and Health Administration (OSHA) and compliance with Article 31 of the San Francisco Health Code. Article 31 contains special permit processing requirements that apply to the Site.

Nothing in this RMP shall be construed to suggest that the Owner has a right of recovery against the Navy for the costs of replacement, repair, modification or disturbance of the remedies in place at the time of transfer or any remedies subsequently installed by the Owner to the extent that such costs result from an Owner's performance of activities authorized under this RMP or under a subsequent FFA Signatory-approved work plan, and that are not related to the investigation or remediation of unexpected conditions. By way of example, such costs may include the following, to the extent they result from the performance of activities authorized under this RMP and are not related to the investigation or remediation of unexpected conditions: costs of repair or replacement of Durable Covers or shoreline revetments; costs of excavation, treatment, and/or disposal of known contaminated soil; costs of repair, replacement, relocation, and abandonment of groundwater monitoring and extraction wells; costs of construction dewatering and related groundwater treatment; costs of installation of groundwater conduit management measures in utility trenches; costs to prevent groundwater intrusion through sealing; and costs of construction- and demolition-related soil sampling and analysis.

1.2 Intended Users of RMP

This RMP is intended for the following entities or their designees who may perform or oversee Restricted Activities within the Site:

- The OCII;
- Owners (see Appendix A Definitions);

- FFA Signatories;
- City and County of San Francisco (City) SFDPH.

The RMP will be used by Owners to ensure protection of the Navy's remedy and by the FFA Signatories and SFDPH to assist in ensuring that future Owners comply with the Restrictions in CRUPs and Deeds applicable to the Site.

Owners shall provide a copy of the RMP to any party with the right to perform subsurface work on the Site, which may include property management companies working on behalf of the Owner and future transferees. However, the Owner remains responsible for compliance with all aspects of the CRUP(s) and this RMP.

1.3 Regulatory Oversight

As defined in the FFA, the Navy is the lead federal agency for compliance with CERCLA, in consultation with the USEPA, DTSC, and RWQCB. A contact list for the FFA Signatories is included in Appendix B.

Regulatory oversight by the FFA Signatories regarding implementation of the RMP includes but is not limited to:

- Review and approval of modifications to the RMP, as described in Section 1.4.
- Performance of inspections to verify compliance with the RMP procedures and protocols.
- Review and approval of Work Plans to conduct Restricted Activities, as described in Section 2.2.2.
- Consultation and oversight of work involving unexpected conditions, as described in Section 3.8.

1.3.1 Compliance with Requirements of Public Agencies That Are Not Parties to the FFA

The RMP identifies certain environmental procedures and protocols that must be followed when carrying out Restricted Activities and the circumstances under which compliance with the RMP satisfies the requirement in an applicable Parcel-specific CRUP to obtain FFA Signatory approval to engage in a Restricted Activity. In addition

to compliance with the Restrictions and other requirements of the CRUP(s), other federal, state, and City permitting and environmental regulations and procedures apply to the Site. The following is a list of state and local agencies that may have requirements for certain construction and maintenance activities, in addition to any requirements described in this RMP and the CRUP(s). This list is an example of potential state and local regulatory agencies and is not intended to be complete or all-inclusive.

- Bay Area Air Quality Management District (BAAQMD) – air emissions and/or dust control for naturally occurring metals and naturally occurring asbestos (NOA), if applicable.
- Bay Conservation and Development Commission – approval of repairs or modifications to the revetment wall within 100 feet of the San Francisco Bay shoreline (as defined in Section 66610 of The McAteer-Petris Act).
- California Department of Fish and Wildlife – protection of endangered species.
- California Occupational Safety and Health (Cal/OSHA) – worker health and safety.
- City and County of San Francisco Department of Building Inspection – building permitting.
- City and County of San Francisco Department of Public Works – permitting of structures in existing or future public rights-of-way and parks; subdivision approvals.
- City and County of San Francisco Fire Marshall – approval of infrastructure related to Fire Department emergency response.
- City and County of San Francisco Municipal Transportation Agency – permitting of infrastructure related to transit and traffic management.
- City and County of San Francisco Public Utilities Commission (SFPUC) – wastewater discharge permitting.
- City and County of San Francisco, OCII, Successor Agency to the Redevelopment Agency – the intended recipient of the Site.
- City and County of San Francisco, Oversight Board for the OCII – design review, CP/HPS Phase II Project.

- RWQCB – CWA Section 401 Water Quality Certification.
- SFDPH – monitoring well permitting, SFDPH Article 31 oversight, and SFDPH Article 22B.
- United States Army Corps of Engineers – approval of repairs or modifications to the revetment wall and storm drain outfalls below sea level.
- United States Fish and Wildlife Service – protection of endangered species.

1.4 Modifications to the RMP

The RMP is designed to be modified when a new Parcel to which the RMP will apply is transferred from the Navy to OCII. Appendix C, which contains Parcel-specific information, will be updated to reflect the current environmental Site conditions. Modifications to the RMP may also become necessary to address unanticipated future events, such as newly-identified chemicals of potential concern (COPCs) for which Site-specific Remediation Goals (RGs) have not been calculated, revisions to the Navy HPS soil gas action levels (SGALs) or RGs,[2] or in the event of a remedy failure. Additionally, based on the progress of remedial activities, modification or termination of specific conditions or controls stated in this RMP may be warranted.

Upon receipt of a proposal to modify the RMP by an Intended User other than the FFA Signatories (see Section 1.2), the FFA Signatories will review the proposed changes, request any additional background information if needed, and issue a decision regarding the proposal within 45 calendar days of receiving any additional requested information.

The CRUPs and deeds for parcels that contain volatile organic compound (VOC) areas requiring institutional controls (ARICs) or Land Use Restriction Areas authorize Owners to seek termination or modification of these restrictions from the FFA Signatories under conditions specified in those documents. Upon approval by the FFA Signatories of modifications to any areas subject to these restrictions, the RMP figures shall be concurrently updated, effective, and filed in the public repository (Section 1.5). It is the Owner's responsibility to take all actions required in the respective CRUP to effectuate such modifications should an Owner desire to seek such a modification.

[2] Note that the Navy is required to undertake a formal review of the protectiveness of the remedy every five years under CERLCA § 121(c), which may include updates to RGs or SGALs.

The FFA Signatories may also propose modifications to the RMP based on new information that the RMP must address for the remedy to remain protective of human health and the environment. In the event the FFA Signatories propose an RMP modification, a draft of the proposed modification will be submitted to the SFDPH and Owners for review. The SFDPH and Owners shall review and provide comment on the proposed modifications within 60 calendar days of the submittal by the FFA Signatories. The FFA Signatories, SFDPH, and Owners will work collaboratively in good faith to develop modifications that are agreeable to all stakeholders.

The modified RMP will become effective immediately upon approval by the FFA Signatories and the modified RMP will be filed in the public repository (Section 1.5). If the proposed modifications are not agreed upon by the FFA Signatories, in consultation with the SFDPH, within 60 calendar days, the RMP shall continue in its original form until the FFA Signatories come to a consensus on the appropriate modifications and notify the SFDPH of the modifications. Changes in notification personnel are not considered a modification to the RMP and do not require FFA Signatory approval.

1.5 Public Repository of RMP

A copy of this RMP and any RMP modifications will be available at the HPS information repositories indicated below, and on the SFDPH Hunters Point Shipyard Redevelopment website ([HYPERLINK "http://www.sfdph.org/dph/EH/HuntersPoint/default.asp"]). The HPS information repositories also contain the documents discussed in Section 1 and referenced elsewhere in this RMP.

San Francisco Main Library
100 Larkin Street
Government Information Center, 5th Floor
San Francisco, California 94102
Phone: 415-557-4500

Bayview/Anna E. Waden Branch Library
5075 Third Street
San Francisco, California 94124
Phone: 415-355-5757

DTSC file room
700 Heinz Avenue
Berkeley, California 94710
Phone: 510-540-3800

Contact information for the FFA Signatories and the SFDPH is provided in Appendix B. Changes in contact information will be submitted to the SFDPH, which will be responsible for including the updated information on their SFDPH HPS Redevelopment website.

FIGURE 1-1

FIGURE 1-2

2. RESTRICTED ACTIVITIES AUTHORIZED WITH CONDITIONS AND REPORTING AND NOTIFICATION PROTOCOLS

The Restricted Activities that are allowed without additional FFA Signatory approval, as long as they are performed in compliance with this RMP, are designated in this RMP as "Restricted Activities Authorized with Conditions" (Section 2.1). The Restricted Activities Authorized with Conditions do not modify any Restrictions in the CRUP for the Parcel.

2.1 Restricted Activities Authorized with Conditions

This RMP authorizes the Owner to perform Restricted Activities Authorized with Conditions, provided that the Owner follows the environmental procedures, protocols, and reporting requirements set out in this RMP (see Sections 2.2, 3, and 4). The Restricted Activities Authorized with Conditions are:

- Any activity occurring on land that is less than 1 acre in size (contiguous area) and involves movement of soil to the surface from below the surface of the land, or penetrates the Durable Cover, including, but not limited to, excavation, grading, or other movement of soil.
- Excavation of soil from one location and placement at any other location on the Site so long as it is placed beneath an FFA Signatory approved Durable Cover (e.g., 2 feet of clean fill, asphalt cover, sidewalk, street, building foundation, etc.), as described further in Sections 3.3 and 3.4, subject to the limitations described in Section 4.2.
- After dedication and acceptance of public rights-of-way by the City, excavation in the public rights-of-way for purpose of installing, repairing, and maintaining the public rights-of-way, utilities, and surface/subsurface facilities that are connected to the utilities and related appurtenances.
- Demolition or removal of "hardscape" (e.g., concrete or asphalt roadways, parking lots, building foundations, sidewalks, etc.) for a contiguous area less than 1 acre in size. Following completion of hardscape removal, an FFA Signatory-approved Durable Cover must be re-installed, as described in Section 3.3. Recognizing that development construction will be phased over a period of many years, the FFA Signatories require that a Durable Cover, or interim

Durable Cover, be restored over a development site within five years of removal of the previously existing Durable Cover.

- Vertical Development in an area of the Site in which Horizontal Development has been completed, and in which the Horizontal Development Completion Report, as approved by the FFA Signatories, specifies that a separate Restricted Activities Work Plan for Vertical Development is not required.

Some specific examples of Restricted Activities Authorized with Conditions that can occur on sites of 1 acre or less include, but are not limited to:

- Excavation of trenches, potholes, or other movement of soil from the subsurface to the surface in support of the installation of new below grade utilities, foundations, or other foundational structures (e.g., sewer lines, water lines, storm water pump station wet wells, pile caps and/or grade beams, fences, etc.).
- Demolition of existing below-grade, at-grade, or above-grade structures.
- Grading for the purpose of raising and/or lowering site grade, creation of building pads, fine grading activities in support of road installation, and associated excavating, loading, hauling, stockpiling and/or compacting soil.
- Pre-drilling for pile installation, including drilling pilot holes through fill material prior to the installation of foundation piles.
- Vertical Development, including construction of facilities, structures, appurtenances, and associated excavation, fine grading, and subsurface utilities. Vertical Development can occur on areas greater than 1 acre if authorized by the Completion Report prepared for the Horizontal Development of the area and approved by the FFA Signatories in accordance with Section 2.2.2.

The Owner must prepare a Restricted Activities Work Plan and obtain FFA Signatory approval as described in Section 2.2.2 to engage in any Restricted Activity other than those activities specifically enumerated above as Restricted Activities Authorized with Conditions. Even when performing Restricted Activities Authorized with Conditions, RMP protocols that address unexpected conditions (Section 3.8) or soil vapor intrusion concerns (Section 4.4 and its subsections) may include the need to confer with the FFA Signatories and/or obtain approval of an Activity Specific Work Plan as described in Section 2.2.3.

2.2 Reporting and Notice Protocols

This section describes reporting and notification protocols that apply when the following circumstances arise:

- Annual Reporting of Restricted Activities Authorized with Conditions (see Section 2.2.1).
- Preparation of a Restricted Activities Work Plan requiring FFA Signatory approval (see Section 2.2.2).
- Preparation of an Activity Specific Work Plan requiring FFA Signatory approval (see Section 2.2.3).
- Discovery of unexpected environmental condition(s) (see Section 3.8).

Notifications are the responsibility of the Owners. The relevant periods for notifications and associated responsible entities are described below. Government entities with oversight responsibilities for certain aspects of the RMP but that are not one of the FFA Signatories are presented in Table 2-1.

2.2.1 Annual Reporting for Restricted Activities Authorized with Conditions

Any Owner that performs Restricted Activities Authorized with Conditions must submit an Annual Report to the FFA Signatories that accounts for the Restricted Activities Authorized with Conditions that occurred during the reporting period. Restricted Activities Authorized with Conditions are listed in Section 2.1. Appendix D includes the Annual Report form that shall be used by the Owner to report on the Restricted Activities Authorized with Conditions (Section 2.1) and risk management measures implemented during Restricted Activities (Sections 3 and 4) that have been conducted over the previous year. The Owner's submittal of the forms in Appendix D, with any additional explanation as required, will comply with the annual reporting obligations of this RMP. The form provided in Appendix D must be completed and submitted to FFA Signatories to comply with the reporting obligations of this RMP. The Annual Report shall be submitted on or before March 30 of each year and will report on activities that occurred during the previous calendar year.

2.2.2 Obtaining Approval for Restricted Activities Which Require FFA Signatory Approval

Prior to conducting Restricted Activities that are not "**Restricted Activities Authorized with Conditions,**" the Owner must submit a Restricted Activities Work Plan to the FFA

Signatories at least 90 calendar days prior to the date the Owner wishes to commence the Restricted Activities.

The Restricted Activities Work Plan shall detail the specific activities to be conducted and the controls to be implemented to ensure safety and to protect and restore the integrity of the remedy. The FFA Signatories shall review and either approve or provide comments within 45 calendar days of receipt of the Restricted Activities Work Plan.[3] The Owner and FFA Signatories will resolve comments through written responses and in-person meetings as appropriate. The Owner shall obtain written approval of Restricted Activities Work Plans from the FFA Signatories prior to commencement of field activities. Following completion of the Restricted Activities approved in the Restricted Activities Work Plan, the affected portions of the remedy will be restored as described in Sections 3 and 4 of the RMP.

All Restricted Activities Work Plans submitted for FFA Signatory approval shall, at a minimum, include the following elements:

- Description of current site conditions;
- Description of all proposed work subject to the Restricted Activities Work Plan, including (as applicable) Horizontal Development to be conducted by Owner and Vertical Development to be conducted by Owner or subsequent Owners;
- Appropriate exhibits and illustrations;
- An implementation schedule, including a submittal date for the Completion Report;
- A description of the protocol that will be implemented to protect and restore the integrity of the remedy during and following completion of the work, including:
    - Implementation of RMP plans and protocols and any site-specific plans and protocols prepared for the work;
    - Reporting on completion of milestones and various stages of work and remedy restoration; and
    - Certifications by a Registered Professional on remedy integrity restoration.

[3] As provided in the Federal Facilities Agreement FFA, an extension for review and comment will be granted to the FFA Signatories if requested within the 45-day review period.

Following completion of the work approved in the Restricted Activities Work Plan, the Owner shall prepare and submit a Completion Report to the FFA Signatories and the SFDPH for review and approval. The Completion Report shall, at a minimum, include the following elements:

- A description of the work completed;
- A description of the final condition of the Site, including the configuration of the final Durable Cover;
- A detailed description and as-built drawings of any remedy or mitigation components installed;
- An accounting of the soil and groundwater management activities, including soil and groundwater hauled offsite for disposal and soil imported for filling;
- Records and documentation such as hazardous waste manifests, soil import evaluation reports, National Pollutant Discharge Elimination System (NPDES) discharge reports, dust and asbestos monitoring documentation, analytical laboratory reports etc.; and
- A modified O&M Plan to include updated O&M provisions necessitated by the work. Amendments and/or modifications to the O&M Plan will ensure that any necessary monitoring is conducted and/or engineering controls continue to operate in a protective manner.

The Completion Report may also specify that, upon approval of the Completion Report by the FFA Signatories, a separate Restricted Activities Work Plan for Vertical Development is not required in designated areas, subject to any site-specific requirements or protocols that are necessary to implement based on the environmental condition of the Site and its configuration following the work that has been performed. Such site-specific protocols or requirements may include but are not limited to assessment of groundwater and soil vapor intrusion data beyond what is required in Sections 4.3 and 4.4 of the RMP.

2.2.3 Activity Specific Work Plan

When conducting Restricted Activities in areas with certain environmental conditions, which are identified in Sections 3 and 4, FFA Signatory notification and approval is required. Prior to conducting specified work in such conditions, the Owner must prepare an Activity Specific Work Plan for FFA Signatory review and approval, the substance and scope of which are provided in Sections 3 and 4. Examples of Activity Specific Work Plans include Groundwater Management Plans (Section 4.3.2), soil vapor

mitigation plans (Section 4.4), utility conduit mitigation plans (Sections 4.4.1 through 4.4.3), groundwater monitoring well relocation plans (Section 3.6.2), requests to modify a VOC ARIC or Land Use Restriction Areas (per applicable CRUP), or any combination of the above. Activity Specific Work Plans shall be prepared and signed by a registered professional engineer or geologist, as appropriate to the work that is contemplated.

2.2.4 Notification Requirements for Discovery of Unexpected Conditions

Unexpected conditions are defined in Section 3.8 and Appendix E. In the event that unexpected conditions are encountered in the field, the Owner shall comply with all requirements described in Section 3.8 and the Unexpected Condition Response Plan (UCRP, Appendix E), which include notification requirements. Additionally, unexpected conditions must be reported in the Annual Report Form provided in Appendix D.

TABLE 2-1

TABLE 2-1
GOVERNMENT ENTITIES WITH INDEPENDENT RISK MANAGEMENT PLAN OVERSIGHT RESPONSIBILITIES

RMP Element	Responsible Oversight Agency	Additional Comments
Construction Worker Health and Safety	Cal/OSHA	Subject to OSHA 1910.120
Dust Control	SFDPH	Subject to the requirements of Article 31 of the Health Code
Asbestos Dust Mitigation Plans	BAAQMD	Subject to the Asbestos California Air Resources Board Airborne Toxic Control Measures (ATCM) for Construction, Grading, Quarrying, and Surface Mining.
Storm Water and Groundwater Management	RWQCB	Subject to the Storm Water General Permit.
Groundwater Discharges to Sanitary Sewer	SFPUC	Subject to the SFPUC Batch Wastewater Discharge Permit.
Permits to engage in subsurface work	San Francisco Department of Building Inspection or San Francisco Department of Public Works	Subject to the requirements of Article 31 of the Health Code

3. RISK MANAGEMENT PROTOCOLS REQUIRED FOR ALL RESTRICTED ACTIVITIES

The purpose of this section is to describe the protocols that will be implemented throughout the Site during the performance of Restricted Activities to maintain the integrity of the remedy and to control potential impacts to human health and the environment associated with potential exposure to chemicals of concern (COCs) that might be present in soil, soil vapor, and/or groundwater. In addition, unique environmental conditions have been identified in specific geographic areas of the Site, which are subject to risk management protocols beyond those described in this Section 3. These environmental conditions and their locations are described for each Parcel in Appendix C. The risk management protocols applicable to work in these locations are described in Section 4.

Agency guidance documents referenced herein may be updated occasionally, and the Owner is responsible for consulting the most updated version.

3.1 Construction Worker Health and Safety

Construction contractors, maintenance contractors, and utility contractors whose workers may contact potentially contaminated soil, soil vapor, or groundwater within the Site, are required to prepare site-specific Environmental Health and Safety Plans (EHSPs) under the direction of a Certified Industrial Hygienist (CIH) and in a manner consistent with applicable occupational health and safety standards, including, but not limited to, OSHA 1910.120. The contractor-specific EHSPs will be maintained by the contractor at the Site. Nothing in this section is intended to relieve any person, including contractors or employers, of other mandated worker health and safety planning and training requirements under any federal, state, or local statute or regulations.

It is the responsibility of the contractor preparing their EHSP to review information available in the HPS information repositories (see Section 1.5) regarding Site conditions and associated potential health and safety concerns (see Appendix C for each Parcel). It is also the responsibility of the contractor or other person preparing an EHSP to verify that the components of the EHSP are consistent with applicable Cal/OSHA occupational health and safety standards and currently available toxicological information for potential COCs at the work site. Contractor compliance with the RMP obligations will be specified in the contract documentation for the contractors performing subsurface work. Each contractor must require its employees who may

directly contact potentially contaminated soil or groundwater to perform all activities in accordance with the contractor's EHSP. Each construction contractor will ensure that its onsite construction workers will have the appropriate level of health and safety training, site-specific training, and will use the appropriate level of personal protective equipment (PPE) as determined in the relevant EHSP based upon the evaluated job hazards and monitoring results. An example EHSP outline is included in Appendix F.

3.2 Access Control

Access to the site during Restricted Activities will be limited to authorized personnel in compliance with EHSP requirements (Sections [REF _Ref351037912 \r \h * MERGEFORMAT] and 4.1). The potential for trespassers or visitors to gain access to construction areas and come into direct contact with potentially contaminated soil or groundwater will be controlled through the implementation of the following access and perimeter security measures:

- Except in streets, security fencing will be placed around any Site without an FFA Signatory approved Durable Cover or where the Durable Cover has been disturbed to prevent pedestrian/vehicular entry except at controlled (gated) points. Gates will be closed and locked during non-construction hours. Fencing will consist of a 6-foot chain link or equivalent fence unless particular safety considerations warrant the use of a higher fence. The appropriate means of access control during routine maintenance activities in small areas will be determined in the EHSP.
- In streets, use a combination of K-rails or similar barriers and fences with locked gates.
- Post "No Trespassing" signs every 200 feet.
- Post signs every 200 feet warning that the area within the fenced areas may contain chemicals that may be harmful to human health.
- "No Trespassing" and warning signs should be in multiple languages commonly spoken in the local community and should include a phone contact.

Implementation of appropriate site-specific measures as outlined above will reduce the potential for trespassers or visitors to gain access to construction areas and to come into direct contact with soil or groundwater.

3.3 Durable Cover Protocols: Hardscape and Landscaped Areas

This section presents protocols to be followed when temporarily removing and then replacing the Durable Cover during Restricted Activities. At the time of Site transfer, the Navy will have established Durable Covers of several types. Existing concrete building foundations, asphalt, and concrete covers (e.g., existing roads and paved parking areas) will comprise a significant portion of these Durable Covers. Remaining areas will have a minimum of 2 feet of clean fill installed, which will serve as the soil Durable Cover.

On occasion, routine property maintenance work may be necessary for landscaped areas (e.g., irrigation installation or repair) within the soil Durable Cover (i.e., the top 2 feet of clean fill). When digging in landscaped areas, workers will segregate any removed soil Durable Cover material from any removed HPS Bay Fill/Native Soil. Any removed HPS Bay Fill/Native Soil will be placed on a plastic barrier to prevent contamination of the underlying material (HPS Bay fill and Native Soil may be combined as the two will probably be indistinguishable).

If the property maintenance work (e.g., major subgrade utility repairs, major building foundation modifications, etc.) requires the complete removal of the soil Durable Cover or the temporary removal and replacement such that the HPS Bay Fill/Native Soil soil becomes exposed, then the protocol presented in this Section must be followed and documented in the Annual Report (Section 2.2.1). Disturbance of the soil Durable Cover must follow the RMP requirements including the Dust Control Plan (DCP) and, if applicable, the Soil Import Plan (SIP). The DCP is included in Appendix G and the SIP outline is included in Appendix H. In addition, the construction Storm Water Pollution Prevention Plan (SWPPP) must address potential for run-off from the exposed soil while the Durable Cover is removed (see Section 3.5). When routine maintenance is complete, workers must document that the soil Durable Cover was replaced with either the clean segregated soil or with 2 feet of imported clean soil that meets SIP requirements for a soil Durable Cover. The Durable Cover is to be replaced within 14 calendar days of the completed routine maintenance work. Annual Report documentation is to include photographs of the work, measured Durable Cover thickness, elevation survey, and a statement signed by the person(s) performing the maintenance activities that the work was completed as per this Durable Cover Protocol; this documentation will be attached to the RMP annual report form (see Appendix D).

3.4 Soil Management

This section descibes the movement and management of soil, including moving and stockpiling soil onsite, dust control, offsite disposal, and importation.

3.4.1 Soil Movement

Except as otherwise provided below, HPS Bayfill and Native Soil within the boundaries of the Site may be moved within the Site and soil from Parcels A and D-2 may be moved from Parcels A and D-2 onto the Site without prior FFA Signatory approval or the need for sampling, if and only if such soil will be placed underneath the Durable Cover. In the event that placement of soil underneath the Durable Cover is not accomplished immediately upon its removal, such soil is to be stockpiled within the Site, with adequate protection, as further described in Section 3.4.2, or removed from the Site for offsite disposal, as described in Section 3.4.4.

This authorization to relocate soil within the Site does not apply to HPS Bay Fill and Native Soil excavated in Land Use Restriction Areas or in VOC ARICs, which are described as applicable for each Parcel in Appendix C. As further discussed in Sections 4.2.3 and 4.4.1, soil excavated from Land Use Restriction Areas and VOC ARICs may not be moved to a location within the Site outside of a Land Use Restriction Area or a VOC ARIC, and keeping only within the same type of Land Use Restriction Area or VOC ARIC area respectively, without prior FFA sSignatory approval.

3.4.2 Soil Stockpile Management

Stockpiling of excavated HPS Bay Fill and/or Native Soil may be necessary on a temporary basis to support the logistical phasing of the redevelopment activities. Whenever possible, soil stockpiles will be located in close proximity to the work area or the ultimate disposition area as practicable within the Site. Stockpiles will be labeled as to the nature of soil contained in the stockpile (e.g., durable cover soil, general fill soil, HPS Bay Fill soil, land use restricted soil, etc.). Occasionally, it may be necessary to place soil stockpiles temporarily outside the Site. When such occasion occurs, the Owner will request permission from the Navy to place soil stockpiles in areas that are still owned by the Navy.

Management of stockpiles containing hazardous substances and/or petroleum substances will include Site access control, storm water runoff control, and dust control

requirements identified in this RMP. Soil stockpiles that contain such substances will be placed on a physical barrier that prevents the contamination of the underlying soil. Examples of a physical barrier are a plastic membrane, concrete surface, or asphalt surface.

Access control to soil stockpiles will be accomplished as outlined in Section 3.2 of this RMP. Storm water runoff requirements will be specified in a project-specific SWPPP as identified in Section 3.5 of this RMP. The project-specific SWPPP will be generated for each project involving earth disturbing activity and is incorporated herein by reference. The DCP that will apply to all work is summarized below and is summarized in Section 3.4.3.

Stockpiles will be under control of the Owner at all times and inspected/monitored as specified in the SWPPP and DCP to ensure access control, dust control, and runoff control measures are functioning adequately. At a minimum, stockpiles will be monitored by the contractor weekly to verify that the various controls are in place and functioning as intended.

3.4.3 Dust Control

Dust control protocols are specified in the DCP, which is included in Appendix G. The DCP identifies the measures that will be taken to reduce particulate emissions during demolition of existing structures, grading, soil handling and stockpiling, vehicle loading, utility work, truck traffic, and construction of Site infrastructure. The DCP has been prepared in accordance with the requirements in Article 31 of the San Francisco Health Code and certain BAAQMD regulations often applicable to redevelopment activities. Exposure of onsite construction workers to dust containing COCs will be minimized, and generation of nuisance dust will also be minimized to comply with Article 22B of the San Francisco Health Code.

NOA has been found in the serpentine bedrock and fill soil throughout the HPS area. Large construction projects occurring within these areas are subject to the California Air Resources Board ATCM. For projects where soil containing NOA will be disturbed in an area of 1 acre or larger (as defined in the ATCM), an Asbestos Dust Mitigation Plan (ADMP) will be submitted to and approved by the BAAQMD, as required. For projects less than 1 acre or for projects greater than 1 acre but for which no asbestos data exist, an evaluation will be proposed in a Restricted Activities Work Plan and performed to

determine whether an ATCM-compliant ADMP is required prior to initiation of potential dust generating activities.

3.4.4 Offsite Disposal of Soil and Wastes

Soil excavations will be required during construction of utility trenches, building foundations, and other facilities. It is likely that excavated soil will be reused within the Site for grading activities. As a result, offsite soil disposal should be limited. Any offsite soil disposal is subject to all applicable federal and state laws and regulations. All activities associated with waste disposal, such as truck loading, truck traffic, and decontamination of trucks leaving the facility will be performed in accordance with the DCP provided in Appendix G and any other applicable federal or state law or regulation.

The Owner or Owner's agent is responsible for characterization of any waste prior to transportation and offsite disposal. Characterization for disposal shall be in accordance with the requirements of Title 22 of the California Code of Regulations (CCR), Division 4.5, Chapter 11, and the requirements of the disposal facility and any other applicable law. Labeling requirements for transportation of waste shall additionally be in accordance with Title 29 of the Code of Federal Regulations, Parts 172 and 173, Title 22 CCR, Division 4.5, Chapter 12, and any other applicable law.

All soil to be disposed of will be taken only to a certified and permitted California landfill or an equivalent out-of-state landfill, as appropriate and as determined by the waste profile.

3.4.5 Soil Import Controls and Acceptance

All soil imported from areas outside HPS will be subject to sampling and soil quality controls established in an SIP as required by Article 31 of the San Francisco Health Code. An SIP outline is included in Appendix H. An SIP for HPS shall be prepared as a separate document and will be consistent with the most current revision of DTSC's October 2001 Clean Imported Fill Material Information Advisory. Soil import acceptance criteria will meet the most stringent of the most recent revision of the USEPA Regional Screening Levels (RSLs; USEPA, 2015a), the California RWQCB Environmental Screening Levels (ESLs; RWQCB, 2013k), or the DTSC soil screening levels that are applicable at the time work is being conducted. For total petroleum hydrocarbons (TPH), the soil import criteria will meet the most recent Tier 1 ESL for

TPH as gasoline, diesel, and motor oil, respectively. Soil with COC concentrations that are equal to or below their respective RSL or Tier 1 ESL is approved for import and will be suitable for use as a Durable Cover.

3.5 Storm Water Management

A construction SWPPP will be required prior to the start of construction activities. The SWPPP will provide the framework for contractors performing work at the Site. The Construction SWPPP must conform to the requirements of the California State Water Resource Control Board (SWRCB) NPDES General Permit No. CAS00002, Waste Discharge Requirements (WDRs) for Discharges of Stormwater Runoff Associated with Construction and Land Disturbance Activities, and the City MS4 permit. As required, a Notice of Intent (NOI) shall be filed with SWRCB prior to commencement of regulated construction work. Compliance with the SWPPP will be maintained throughout the duration of the construction work. The SWPPP will be prepared by a Qualified SWPPP Developer (QSD) per Section VII of the 2009-0009-DWQ Permit:

([HYPERLINK "http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/construction.shtml"]).

3.6 Groundwater Monitoring Wells

Monitoring wells associated with the Navy's Basewide Groundwater Monitoring Program (BGMP) are present within HPS, and additional wells associated with the Navy remedial activity monitoring may be installed.

It is a requirement of the CRUP that the integrity of and access to the monitoring well network by the Navy be maintained during Site development activities. Only the FFA Signatories can decide that a well that was installed as a part of the groundwater remedy is no longer needed or must be relocated. Prior to the initiation of any demolition or earth-disturbing activities, the presence of groundwater monitoring wells within the active work area will be identified and physically marked in the field. A location map and survey coordinates for each monitoring well can be found in the HPS information repositories (Section 1.5) and on the SFDPH HPS Redevelopment website. Current active monitoring wells located on the Site known as of the date of this RMP are presented in Appendix C figures.

For any active groundwater monitoring wells within the active work area, every effort must be taken to protect the well and work must occur in a manner so as not to damage or compromise the well integrity. The contractor shall use appropriate means and methods to demarcate the location of the well and to establish protective barriers (e.g., steel or concrete bollards surrounding the well; steel plates placed on top of the well, etc.) to prevent the well from becoming damaged as a result of the work. At the conclusion of work, all monitoring wells within the work area will be inspected to confirm that no damage has occurred. The inspection of the wells will be documented in the prepared report(s), as applicable.

If an existing groundwater monitoring well cannot be preserved during earth disturbing activities, the Registered Professional shall prepare an Activity Specific Work Plan, for FFA Signatory review and approval prior to the commencement of any Restricted Activity, that documents the proposed plan for abandonment of, repair of unintentional damage to, or replacement of groundwater monitoring wells. Any well that is part of a remedial action that is damaged or abandoned during construction must be repaired or replaced within 60 calendar days unless the FFA Signatories grant an extension.

The Owner is also responsible for providing access for the FFA Signatories to the monitoring wells for the purposes of sampling and maintenance. Regulatory approval must be obtained prior to any action that will bar access to a monitoring well for a period of greater than seven calendar days.

3.6.1 Abandonment of Existing Monitoring Wells

The existing well will be abandoned in accordance with the approved Activity Specific Work Plan and applicable State and SFDPH regulations. The Owner is responsible for obtaining all appropriate well abandonment permits and approvals. Well abandonment field activities will be documented to demonstrate compliance with permit conditions.

Following abandonment of groundwater monitoring wells, a completion report will be prepared by a Registered Professional describing the abandonment procedures and submitted to the FFA Signatories. The report will include:

- The well location;
- Photographic documentation of the abandonment;

- A description of the well destruction activities, including rationale for abandonment;
- All associated permits and waste disposal manifests, if necessary; and
- Department of Water Resources (DWR) well completion and abandonment reports.

3.6.2 Replacement of Monitoring Wells

Any required replacements of abandoned monitoring wells, which are part of an ongoing groundwater monitoring network, will be re-installed within 60 calendar days of the prior well's abandonment date unless the FFA Signatories grant an extension.

Replacement wells will be located as close as possible and constructed in the same manner as the original well, and will monitor, to the extent possible, the same groundwater zone as the original well. An analysis shall be conducted by a Registered Professional to demonstrate that the location of the proposed replacement well is representative of the same groundwater conditions as the existing well to be replaced. The analysis may draw on several lines of evidence, including, but not limited to, hydrogeologic conditions of the area, groundwater elevation contours, groundwater quality of the existing and nearby wells, and objectives of the remedial performance monitoring at that well location. The analysis shall be documented in the Activity Specific Work Plan and will be subject to the review and approval of the FFA Signatories. The Owner is responsible for obtaining all appropriate permits and approvals and providing notification to the Navy. It will be the responsibility of the Navy to update the Basewide Groundwater Monitoring Plan in response to changes in monitoring well location.

Prior to the replacement of an abandoned well, an Activity Specific Work Plan, prepared by a Registered Professional, will be submitted to the FFA Signatories. The Activity Specific Work Plan will include soil management protocols, sampling and analysis requirements for waste profiling, monitoring procedures, health and safety requirements, the boring log of the original well (obtained from the HPS information repositories), proposed well construction details, and will describe procedures to be followed during installation of the replacement well. The location of the replacement well must be approved by the FFA Signatories.

Following installation of the replacement well(s), a monitoring well installation completion report will be submitted to the FFA Signatories. The report will include, among other things:

- Survey coordinates of the new well location;
- Identification of driller and drilling procedures;
- DWR Well Completion Report;
- Decontamination procedures;
- Well installation procedures;
- Lithologic log;
- Well development procedures;
- Horizontal location coordinates and vertical elevation of top of casing;
- Well completion details (depth, screen interval, materials used, surface completion, etc.);
- Initial water level measurement;
- Well sampling, if necessary;
- Permitting information; and,
- Disposition of installation-derived wastes.

The report shall be signed by a Registered Professional.

3.7 Protection of Shoreline Improvements

Construction and maintenance activities in shoreline areas may include maintenance or improvements to revetment walls, rip rap, sheet piles, quay walls, or bulkheads at the bay margin. Work performed in these areas will be required to conform to the Durable Cover and/or revetment walls designs described in the Remedial Design (RD) Package reports and the Remedial Action Work Plan (RAWP). All appropriate Navy documents (e.g., Operation and Maintenance Plans) must be consulted and the FFA Signatories notified no later than 14 calendar days prior to conducting work within 100 feet of the shoreline to determine the applicable requirements.

3.8 Unexpected Conditions

An unexpected condition is a condition observed in the soil, soil vapor, and/or groundwater that indicates the potential for Hazardous Substances and/or petroleum hydrocarbons to exist beneath the Site at a location that has not previously been identified, characterized, or remediated by the Navy.[4] By way of example, unexpected conditions may include visibly discolored soil, soil exhibiting a chemical odor, the presence of an oily sheen or separate-phase petroleum product in the soil or groundwater, unexpected subsurface structures, radioactive materials, buried munitions or munitions constituents, or other visual or olfactory evidence of a historical release not previously identified. If in the course of evaluating the unexpected condition, the soil exhibits a total TPH concentration equal or greater than the Navy's petroleum Source Criterion for soil (3,500 milligrams per kilogram [mg/kg] TPH; Shaw Environmental, Inc. [Shaw], 2007), the soil will be managed as if it contains separate-phase petroleum product.

The potential exists for encountering unexpected or unknown subsurface conditions within the Site during development construction. As part of the site-specific health and safety training that will be required of grading contractors and site construction workers, instruction will be given on how to identify and respond to potential unexpected conditions. In addition to visual and olfactory cues, examples of radioactive materials, munitions, or other objects that may be encountered during grading activities will be included in the contractor's EHSP.

The UCRP (Appendix E) identifies how unexpected contamination shall be addressed in consultation with the SFDPH and FFA Signatories. Upon discovery of a potential unexpected condition, the Owner shall conduct an initial assessment to identify the nature of the condition. The initial preliminary assessment will be made in accordance with Section 1 of the UCRP. The nature of the condition will be described as one of the two categories of conditions, as follows:

- **Category 1 Condition:** A Category 1 Condition could pose an immediate hazard to construction workers and warrants a timely and coordinated response

[4] The figures in Appendix B-C describe and depict the locations of many known environmental conditions for each Parcel; these are not unexpected conditions, by definition. Section 4 describes the protocols addressing these conditions.

between the developer, SFDPH, and the FFA Signatories. By way of example, Category 1 Conditions include radioactive materials and material potentially presenting an explosive hazard (MPPEH).

- **Category 2 Condition**: A Category 2 Condition is less likely to represent an immediate hazard to construction workers and warrants a response through the SFDPH and the FFA Signatories. By way of example, Category 2 Conditions include visual and/or olfactory evidence of hazardous substances and/or petroleum constituents in soil, soil vapor, and/or groundwater.

If the condition is determined to be a Category 1 Condition, the Owner will stop work, secure the area, notify the SFDPH and FFA Signatories within 24 hours of designating a Category 1 Condition, and consult with FFA Signatories to determine the appropriate response action. In the case of radioactive materials, the Owner will consult with SFDPH and FFA Signatories to determine the appropriate response and may request the Navy to take appropriate action. In the case of MPPEH, the Owner will consult with SFDPH and FFA Signatories to determine the appropriate response, and in the case of suspected unexploded ordnance, notify the San Francisco Police Department Bomb Squad to take appropriate action. In either case, the FFA Signatories and the SFDPH may require that a response plan be submitted for review and approval prior to initiating the action.

If the condition is a Category 2 Condition, the Owner will temporarily suspend work and notify the SFDPH and FFA Signatories of the condition. In making the notification, the Owner will provide any information that it may have regarding the condition. The Owner will then follow the steps outlined in Section 2.2 of the UCRP (Appendix E) in consultation with the SFDPH and FFA Signatories to address the condition.

In accordance with the site-specific EHSP, appropriate measures will be undertaken to ensure worker safety in areas where unexpected conditions are encountered. The Site Safety and Health Officer (SSHO) will be responsible for performing activity hazard analyses and evaluating any change in site conditions. The SSHO may stop work to determine if the level of site security and PPE is adequate.

4. RISK MANAGEMENT PROTOCOLS FOR WORK IN CERTAIN AREAS WITH KNOWN ENVIRONMENTAL CONDITIONS

The FFA Signatories have identified certain geographic areas with unique environmental conditions and require that work in these areas follow specific risk management protocols. The geographic areas are identified for each Parcel in Appendix C and depicted in figures, where applicable. This section describes the protocols, which have been developed to maintain the integrity of the remedy and to mitigate potential impacts to human health and the environment associated with the unique environmental conditions. For areas subject to these protocols, an Owner is authorized under this RMP to perform Restricted Activities Authorized with Conditions (Section 2.1) only to the extent the Owner complies with all protocols set forth in this Section in addition to those set forth in Section 3.

4.1 Building Foundation Removal – Construction Worker Health and Safety

As identified for each Parcel in Appendix C, as applicable, the FFA Signatories have determined that soil beneath certain building foundations may contain unexpected levels of COCs that have been previously remediated in soil surrounding the buildings but not under the buildings. In addition to the general health and safety protocols outlined in Section 3.1, location-specific protocols are required when the Owner is removing the building foundations or portions of building foundations in these specific locations and exposing the HPS Bay Fill/Native Soil.

In preparing and implementing the EHSP pursuant to Section 3.1, focused consideration should be given to these areas and the conditions listed in Appendix C when identifying appropriate health and safety protocols and PPE for the protection of worker health and safety.

In addition, the Owner will engage a full time third-party environmental professional to monitor the characteristics of the soil as the building foundation is being removed. During field construction work, the environmental professional shall physically observe the condition of the soil beneath the foundation (visual and olfactory characteristics) and may screen the soil using one or more field screening instruments as appropriate (organic vapor monitor [OVM], photoionization detector [PID], X-ray fluorescence [XRF] analyzer, and gamma ray spectrometer, etc.), as specified in the EHSP. Field screening instruments will be employed if the soil is unnaturally discolored and/or exhibits a chemical odor. The monitoring will be focused on providing real-time field

information on which decisions concerning worker health and safety protocol and PPE can be made.

4.2 Soil Management Areas

As described in Appendix C for each Parcel, as applicable, there are some discrete areas where soil remains with known residual COC concentrations above ROD RGs or Petroleum Preliminary Screening Criteria (PSC; Shaw, 2007) with a restricted No Further Action (NFA) designation. Soil management protocol to address these conditions are included below in Sections 4.2.1 and 4.2.2.

4.2.1 Soil with COCs Above RGs or PSC

The FFA Signatories agreed to leave soil in place with COC concentrations above ROD RGs or PSC in discrete areas where the Navy and/or FFA Signatories have conducted a risk management evaluation and determined that potential health risks can be appropriately managed with the use of a Durable Cover. (Note that naturally occurring metals exist at levels above RGs at various locations throughout the Site, and are subject to Section 3.4, but only the discrete areas as identified in Appendix C for each Parcel are subject to these protocols). If the existing Durable Cover above such soil is removed, the soil from the delineated areas identified in Appendix C must be handled in accordance with one or more of the following soil handling and management protocols:

- The soil may be left in an undisturbed condition and re-covered with a Durable Cover as soon as practical but in no event more than five years after removal without FFA Signatory approval.
- If the soil is disturbed, the soil must be excavated, segregated, and stockpiled. Stockpiled soil must be managed in accordance with the procedures described in Sections 3.4.1, 3.4.2, and 3.4.5 of this RMP. When appropriate in the development process, the Owner may choose to return the soil to the original location and depth from which it was excavated with the exception of utility corridors, and cover it with a Durable Cover. To reduce the exposure to potentially contaminated soil during future utility maintenance, impacted material initially removed from utility corridors will be disposed of at an appropriate offsite disposal facility. Utility corridors will only be backfilled with HPS Bay Fill, Native Soil, or imported material that meets the requirements of the approved SIP (see Section 3.4.5).

- The Owner may choose, at any time, to dispose of the soil at an appropriate offsite disposal facility in compliance with the requirements of that facility and in accordance with all applicable state and federal regulations (Section 3.4.4).

4.2.2 Soil with Residual Petroleum

As described in Appendix C for each Parcel, as applicable, the Navy has implemented corrective action at locations historically affected by petroleum releases and the RWQCB has granted NFA designations where corrective action has been successfully completed. In certain areas, the NFA designation is subject to restrictions. Soil management protocol is described below for NFA areas that are not subject to restrictions and for those subject to restrictions.

4.2.2.1 NFA Areas with Restrictions

Certain location-specific areas on the Site where petroleum releases were remediated but petroleum COCs remained in place above the PSC were granted an NFA designation by the RWQCB with restrictions. Impacted soil encountered in these locations may not be left in place and re-covered or placed elsewhere on or near the Site (except for temporary storage). This material must be handled in consultation with the RWQCB and in accordance with one or more of the following protocols, or as otherwise approved by the RWQCB:

- The soil may be removed and disposed offsite;
- The soil may be removed, treated to levels below the Tier I PSC or Tier II risk criteria (Shaw, 2007), and placed back onsite under the Durable Cover;
- The soil may be contained (laterally and vertically) at the location in which it was discovered to prevent future migration of the separate phase product; or
- The Owner may conduct a site-specific evaluation of residual saturation to demonstrate the petroleum is not mobile (e.g., evaluate residual saturation) and does not pose a risk to human health and the environment.

4.2.2.2 NFA Areas without Restrictions

Areas where petroleum releases were completely remediated or residual petroleum COCs remain in place below the PSC were granted an NFA designation by the RWQCB without restrictions. Although soil in these areas may be discolored or exhibit

a petroleum odor, absent the presence of unexpected conditions, soil in these petroleum NFA areas may be managed and moved within the Site in accordance with the general soil handling protocol set forth in Section 3.4. These areas are not subject to the restrictions discussed above in Section 4.2.2.1.

4.2.3 Land Use Restriction Areas

There are areas on the Site where the ROD has specified clean-up to commercial/industrial standards. In these areas, referred to as "Land Use Restriction Areas," residential and other sensitive land uses are prohibited. The specific Land Use Restriction Areas are described in Appendix C for each Parcel, as applicable.

For Land Use Restriction Areas, the general authorization set forth in Sections 2.1 and 3.4 to move excavated soil from one location to another within the Site does not apply. Instead, any HPS Bay Fill and Native Soil excavated in Land Use Restriction Areas or a VOC ARIC may be relocated on the Site only within existing Land Use Restriction Areas orf VOC ARIC, respectively, absent approval from the FFA Signatories.

4.3 Groundwater Management Areas

Areas with residual COCs in groundwater are described in Appendix C for each Parcel, as applicable, and are referred to as "Groundwater Management Areas." This section describes the protocols that apply when performing subsurface work that may impact groundwater in Groundwater Management Areas. These protocols may include data review (for all such work), preparation of a Groundwater Management Plan (GMP) (for work requiring dewatering), and preparation of an Activity Specific Workplan (for construction of utilities).

4.3.1 Groundwater Data Review

Prior to conducting subsurface activities that may impact groundwater in Groundwater Management Areas, the most recent groundwater monitoring data available will be evaluated by a Registered Professional on behalf of the Owner (hereafter referred to as Registered Professional). The objective of the review shall be to identify areas where COCs may remain in groundwater at concentrations that could pose worker safety concerns or potential vapor intrusion concerns. Based on the findings of the review, the Registered Professional shall determine the appropriate protective measures to address worker safety, prevent the movement of any residual groundwater contamination, and

mitigate the potential for vapor intrusion. Protocols for work in these areas are described below; protocols to address potential vapor intrusion are included in Section 4.4. All activities discussed below will require FFA Signatory notification in accordance with Section 2.2.4.

4.3.2 Groundwater Management Plan (required for construction dewatering)

Current development plans include utility trenches and below-grade parking lots to support the installation of utilities, construction of parks, and residential and commercial development. Due to the depth of these proposed excavations, temporary groundwater dewatering may be necessary to facilitate the construction of below-grade structures. In the event that temporary groundwater dewatering is anticipated in a Groundwater Management Area, the Registered Professional shall prepare an Activity Specific Work Plan (see Section 2.2.3) for groundwater management (i.e., a GMP). Appendix I contains an outline that will be used to prepare a GMP. The GMP will be submitted for review and approval by the FFA Signatories prior to conducting any activity that will encounter groundwater with residual COCs.

As a general guide, the following risk management protocols will be included in the GMP:

- Conduct preliminary estimates of the amount of water that will need to be removed and the duration of pumping for the specific construction activity.
- Review of available groundwater monitoring data to evaluate groundwater quality in the vicinity of the planned dewatering activities.
- Based on the location of the proposed dewatering, a Professional Engineer or Geologist licensed in the State of California will evaluate whether the volume of water that would need to be removed would result in the enlargement of an existing groundwater plume or significant alterations in the groundwater flow patterns.
- If the volume estimates, duration estimates, and location of the groundwater dewatering suggest that such activities are not likely to result in the enlargement of a groundwater plume or significant alterations in flow patterns, then simple dewatering methods, such as those employed through the use of a sump pump, may be proposed to prevent groundwater from accumulating in an open excavation.

- If, based on the results of analysis, dewatering may result in enlargement of an existing groundwater plume, or result in significant alterations to groundwater flow in the vicinity of a plume, then other engineering techniques will be proposed to minimize the impacts to the known plume configuration. The proposed engineering technique will depend on the construction specifications and other site-specific factors and will be determined by the Owner's State of California, licensed Professional Engineer or Geologist on a site-by-site basis.
- Water removed during dewatering activities will be sampled and tested for profiling and the water disposed of in accordance with applicable permits and regulations. Disposal options may include pre-treatment and discharge into the City's sanitary sewer system under an SFPUC batch wastewater discharge permit. Compliance with provisions of any discharge permit is the responsibility of the Owner.
- The results of the analysis, plans for dewatering, and disposition of accumulated groundwater will be contained in the notification to the FFA Signatories.

4.3.3 Activity-Specific Controls for Utility Work

As much as practicable, installation of subsurface utilities in a Groundwater Management Area will be avoided. The construction of trenches through such areas may create a horizontal conduit for the migration of COCs. Prior to subsurface utility trench installation, the most current groundwater monitoring data will be evaluated by a Registered Professional to identify areas where COCs remain in groundwater at the Site (see Appendix C figures).

Prior to constructing new subsurface utilities in Groundwater Management Areas that may impact groundwater, the Registered Professional shall prepare an Activity Specific Work Plan describing the engineering controls that will be implemented to mitigate the potential for COCs to migrate along utility corridors. Industry standard best management practices for engineered barriers in utility trenches to mitigate the potential for vapor and groundwater migration along utility corridors will be installed, as appropriate for site conditions. Control measures, which have been previously approved for construction at the Site, include:

- Selecting piping materials that are compatible with the geochemical conditions of the subsurface to ensure the integrity of the piping when in contact with known COCs.

- Sealing pipe joints of non-pressurized utilities (e.g., sanitary sewer, storm drain, etc.) to prevent COCs in groundwater or soil vapor from entering the buried piping.
- Installing impermeable trench plugs for new utility corridors crossing through, or over, VOC impacted groundwater at the outer boundaries of the impacted areas. The plugs will encompass the width and depth of the utility trench and have a length of 2 feet. The plug will be comprised of a cement slurry (two-sack mix) containing 2% bentonite.
- Installing impermeable trench plugs at the base of the foundation where new dry utility corridors enter the building, regardless of whether it crosses a VOC-impacted area. This would prevent the possible creation of a new conduit if conditions were to change in the future.
- Installing a silicone sealant within subsurface dry utility conduits (e.g., telephone and electrical conduits) entering a building over a VOC ARIC. Sealing would be at the point of entry into the building.

Additional engineered barriers may be considered and recommended for installation and approval by the FFA Signatories, as appropriate. The findings of the groundwater evaluation and the method for mitigating the potential groundwater migration, if different from those specified above, will be presented to the FFA Signatories and the SFDPH in the Activity Specific Work Plan for review and approval prior to construction.

4.4 Soil Vapor Management Areas

The FFA Signatories have designated certain areas of the Site as an ARIC for VOCs in soil vapor. These areas are identified in Appendix C for each respective Parcel. Structures built and utility work in these areas must comply with industry standards, protocols, and best management practices designed to prevent COCs in soil vapor from migrating into the building, entering utility piping, or compromising the quality of indoor air. Structures built near certain monitoring wells must also undergo evaluation for the need for similar controls. Protocols for these conditions are outlined in the following Sections. All activities discussed below will require notification in accordance with Section 2.2.3.

4.4.1 Vapor Migration Controls for Buildings within VOC ARICs

Prior to construction of any new Inhabited Building within the VOC ARIC, the Owner shall prepare an Activity Specific Work Plan (see Section 2.2.3) for vapor migration controls and obtain approval from the FFA Signatories. The Activity Specific Work Plan shall present the concept and details of vapor migration engineering controls or design alternatives to be incorporated into Inhabited Buildings and utilities that connect to the building.

4.4.2 Vapor Migration Controls for Construction of Utilities within VOC ARICs

As much as practicable, installation of subsurface utilities within VOC ARICs will be avoided. The construction of such trenches through an area of known COCs in soil vapor may create a horizontal conduit for the migration of COCs into inhabited buildings.

Prior to subsurface utility trench installation within a VOC ARIC, the most current groundwater monitoring and soil vapor data will be evaluated by a Registered Professional to identify areas where COCs remain in groundwater and soil vapor at the Site. In addition, the Owner shall prepare an Activity Specific Work Plan (see Section 2.2.3) describing the engineering controls that will be implemented to mitigate the potential for COCs to migrate along utility corridors. Control measures, which have been previously approved for construction at the Site are set forth in Section 4.3.3. (These measures are applicable for mitigation of potential migration for contaminants in both groundwater and soil vapor.)

Additional engineered barriers may be considered and recommended for installation and approval by the FFA Signatories, as appropriate. The findings of the soil vapor evaluation and the method for controlling the potential soil vapor migration, if different from those specified in Section 4.3.3, will be presented to the FFA Signatories and the SFDPH in the Activity Specific Work Plan for review and approval prior to construction.

4.4.3 Vapor Migration Controls for Buildings Within 100 feet of a Remediation Performance Monitoring Well

Remediation performance monitoring wells are monitored by the Navy as a component of the active remedy implementation that are currently ongoing at active IR sites that are adjacent or in close proximity to the transferred Parcels. These wells are designated for each Parcel in Appendix C figures as applicable. Upon successful closure of an IR site, the remediation performance monitoring wells will either be taken out of service by the Navy or remain as part of the Navy's BGMP.

When construction of a building is planned in areas with remediation performance monitoring wells, a Registered Professional shall review the most current groundwater data to evaluate whether a potential vapor source and intrusion pathway may exist (Appendix C figures). As of the date of this RMP, the USEPA has specified that any proposed building within a distance of 100 feet of a performance monitoring well is subject to such evaluation; however, the radial distance will be as specified in the most current version of the USEPA Vapor Intrusion Guidance (USEPA, 2015d, or any relevant updates) and relevant guidance from other regulatory agencies (e.g., DTSC, 2014, 2012, 2011b, 2011c; RWQCB, 2014b). This evaluation shall be conducted whether the remediation performance monitoring well is within or outside any Groundwater Management Area or VOC ARIC. The review shall follow the most current vapor intrusion guidance for soil vapor evaluations from USEPA and other relevant regulatory agencies. If the review indicates the potential for migration of COCs along the utility corridor or poses a vapor intrusion risk to an Inhabited Building, the Registered Professional shall prepare an Activity Specific Work Plan for vapor migration controls. The Work Plan submission shall include written description of this evaluation. If the review indicates the potential for migration of COCs along the utility corridor or a risk for vapor intrusion to an Inhabited Building does not exist, the Registered Professional shall document the basis and conclusions of the evaluation in a Restricted Activities Work Plan, Activity Specific Work Plan, or a separate Technical Memorandum, which will be submitted to the FFA Signatories.

5. REFERENCES

California Department of Toxic Substances Control (DTSC), 2011b. Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.

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DTSC, Los Angeles Regional Water Quality Control Board and San Francisco Regional Water Quality Control Board, 2012. Advisory – Active Soil Gas Investigations. April.

DTSC, 2014. Human Health Risk Assessment Note 5, Health-based Indoor Air Screening Criteria for Trichloroethylene (TCE). 23 August.

Regional Water Quality Control Board (RWQCB), 2014b. Draft Interim Framework for Assessment of Vapor Intrusion at TCE-Contaminated Sites in the San Francisco Bay Region. 16 October.

RWQCB, 2013k. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater; Update to Environmental Screening Levels. 23 December.

Shaw Environmental Inc. (Shaw), 2007. Final New Preliminary Screening Criteria and Petroleum Program Strategy, prepared on behalf of the Navy. 21 December.

United States Department of the Navy (Navy), 1992. Federal Facilities Agreement, Hunters Point Shipyard.

United States Environmental Protection Agency (USEPA), 2015a. Regional Screening Levels (Formerly PRGs), updated November. [HYPERLINK "http://www3.epa.gov/region09/superfund/prg/"]

USEPA, 2015d. Office of Solid Waste and Emergency Response. Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air. June (OSWER Publication 9200.2-154).

APPENDICES

APPENDIX A

Definition of Terms

APPENDIX B

Contact Information

APPENDIX D

Annual Report Form

APPENDIX F

Environmental Health and Safety Plan Outline

APPENDIX G

Dust Control Plan

APPENDIX H

Soil Import Plan Outline

APPENDIX I

Groundwater Management Plan Outline

APPENDIX E

Unexpected Condition Response Plan